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ABSTRACT

School-based health clinics, adolescent pregnancy prevention programs offering comprehensive health services, represent the latest initiative to reduce the incidence of teenage pregnancy. Researchers at Johns Hopkins University designed and administered a pregnancy prevention program which offered sexuality education and family planning services to black junior and senior high school students in two Baltimore, Maryland public schools. Students received nearly three years of sexuality education, free medical and contraceptive services, pregnancy testing, and contraception counseling. The attitudes, knowledge, and sexual practices of these students were compared with those of a control group of students in two other Baltimore secondary schools with no school-based family planning services. Control subjects completed self-administered questionnaires at the beginning and end of the evaluation; experimental subjects completed questionnaires four times during the evaluation period. The results revealed that, compared to control school students, students in the experimental schools displayed a greater knowledge of sexuality and a greater tendency to use effective contraception. The pregnancy rate among experimental high school students decreased 30.1% while the control high school students' rate increased 57.6% over the same 56-month period. Unfortunately, a weakness in the study design, combined with the failure to control for and/or properly quantify key variables, limits the study's usefulness to the academic and policy making communities. (NB)

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RESEARCH DEVELOPMENTS

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SCHOOL-BASED HEALTH CLINICS: An Analysis of the Johns Hopkins Study

Adolescent pregnancy prevention programs offering comprehensive health services represent the latest initiative to reduce the incidence of pregnancies among America's youth. Commonly known as school-based health clinics (because of their location in or near middle, junior, and senior high schools), these programs provide a wide range of pregnancy-related services to adolescents, including gynecological exams, pregnancy tests, and prenatal and postpartum care.[1] In addition, most of these clinics either distribute or write prescriptions for birth control products, and some make referrals to other family planning agencies.[2] (Center for Population Options, 1986:9).

Apart from their family planning component, most school-based clinics offer a number of other health

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1. While some schools that have health programs do not offer family planning services, "by definition all of the [school-based] clinics are involved in family planning" (Kirby 1985:8).

2. Generally, family planning is a term used to describe efforts to regulate birth. Family planning clinics typically provide a wide range of birth control services, including but not limited to the distribution of contraceptives. Some clinics perform abortions; others make abortion referrals. According to a 1986 survey by the Center for Population Options, 52% of all school-based clinics prescribe contraceptives, 28% dispense contraceptives, and 20% refer students interested in obtaining contraceptives to family planning agencies.

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services, such as athletic physicals, laboratory and diagnostic screenings (for sickle cell anemia, sexually-transmitted diseases, and other health problems), immunizations, day care, drug and alcohol abuse programs, nutrition and weight reduction programs, and family counseling (Kirby, 1985:6-7).

Supporters of school-based health clinics believe the accessibility, availability, and acceptability of family planning services decreases adolescent pregnancy by increasing responsible contraceptive behavior among adolescents. Since adolescents are not generally proficient users of contraceptives, moving birth control resources into or near middle, junior, and senior high schools is designed to improve the contraceptive practices of sexually active students (Kirby, 1985:13).

Opposition to school-based health clinics centers around the controversial practice of offering birth-control information, resources, and services to minors. Opponents believe that distributing contraceptives to adolescents in or near the school system creates a climate of legitimacy and acceptability for premarital sexual activity, which is often at odds with the values and instruction students receive from their parents at home. Accordingly, opponents believe school-based clinics give adolescents subtle

encouragement to become sexually active before they are physically, psychologically, or financially prepared for the responsibilities of adulthood.

During the early 1980s, advocates of school-based clinics supported their perspective by citing research statistics from the school-based clinic program in St. Paul, Minnesota. But an evaluation of the St. Paul study revealed methodological problems (National Research Council, 1987; Mosbacker, 1986). For example, the St. Paul study did not employ the use of a control group in order to make comparisons, and it did not indicate whether the decline in the adolescent birth rate at the clinic school was due to an increase in the abortion rate or a decrease in the pregnancy rate (Mosbacker 1986:4-5).

Several years after the school-based clinic program began in St. Paul, researchers at Johns Hopkins University (JHU)[3] designed and administered a pregnancy prevention program which offered sexuality education and family planning services to students in two Baltimore, Maryland schools (Zabin, et al., 1986a). A research evaluation of this program, which was conducted by a team of Johns Hopkins

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3. The researchers were faculty members in the School of Medicine's Department of Pediatrics, and Department of Gynecology and Obstetrics.

researchers, was published in the May/June 1986 issue of Family Planning Perspectives.

This paper will describe and evaluate the Johns Hopkins study, focusing primarily on the reported shifts in adolescent pregnancy rates. In addition, this review will identify areas needing further investigation and examine the JHU study's utility in influencing public policy decisions.

DESCRIPTION OF THE JOHNS HOPKINS STUDY

The Johns Hopkins researchers evaluated the impact of school-based health clinics on junior and senior high students in two Baltimore public schools. For nearly three years, students attending these two schools were provided sexuality education,[4] free medical and contraceptive services, pregnancy testing, and contraception counseling. The Johns Hopkins researchers compared the attitudes, knowledge, and sexual practices of these students with a control group of students in two other secondary schools in the Baltimore area which did not have school-based family planning services.[5]

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4. The sexuality education curricula at the experimental schools included classes in adolescent development, individual and group counseling, and rap sessions. Little information was given about the corresponding sexuality education curricula at the control schools.

5. If family planning services were available to the control populations at some off-campus location, it was not stated in the report of the study.

Figure 1 (below) summarizes the reported demographic characteristics of these four schools.

-FIGURE 1-

EXPERIMENTAL SCHOOLS: DEMOGRAPHIC CHARACTERISTICS

+Junior High School+
- Race: All Black.
- Residence: Urban, inner city population; high proportion live in public high-rise housing.
- Socioeconomic Status: Low; almost 9 of 10 students qualified for free lunch program at school.
- School Characteristics: Community school.

+Senior High School+
- Race: All Black.
- Residence: From the entire city and surrounding community.
- Socioeconomic Status: Less than three-quarters qualified for the free lunch program.
- School Characteristics: A magnet and community school (the 9th and a subset of the 10th-12th grade have higher academic standing than the remaining population).

CONTROL SCHOOLS: DEMOGRAPHIC CHARACTERISTICS

+Junior High School+
- Race: Racially mixed population (Only the black students are included as the comparison group).
- Residence: Not given.
- Socioeconomic Status: Similar to the experimental school
- School Characteristics: Not given.

+Senior High School+
- Race: Racially mixed population (Only the black students were included as the comparison group).
- Residence: Not given.
- Socioeconomic Status: Similar to the experimental school
- School Characteristics: Not given.

Self-administered questionnaires given to the student populations in both the experimental and control schools evaluated changes in the students' knowledge, attitudes, and behavior over the experimental period. In the two control schools, the questionnaires were given at the beginning and end of the evaluation period. In the two experimental schools, questionnaires were administered four times during the evaluation period. According to the research team:

> The questionnaires asked the students for detailed information of their knowledge, attitudes and behavior relative to sexual conduct, contraception, teenage pregnancy and parenthood. It asked them about communication with their parents and partners, their educational aspirations and a range of demographic and background variables (Zabin, et al., 1986a:119).

At the conclusion of the experimental period, the investigators of the Johns Hopkins Pregnancy Prevention Program found:

- students in the experimental schools displayed a greater knowledge of sexuality than students in the control schools;
- students in the experimental schools displayed a greater tendency to use effective forms of contraception than students in the control schools;[6]

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6. For example, virgins used contraception before their first coitus, and sexually active students began using effective methods of contraception.

- the average age at which experimental school students became sexually active rose from 15 years and 7 months to 16 years and 2 months;[7] and
- over a 56-month period,[8] the adolescent pregnancy rate among students in grades 9-12 in the experimental school dropped 30.1, while the control school pregnancy rate increased 57.6 percent.

The researchers attributed these results to the pregnancy prevention program offering family planning services to students in the experimental schools (1986a:124).

A REVIEW OF THE RESEARCH DESIGN

Did the pregnancy rate at the experimental schools really drop? And if it did, were the clinics responsible for this change? A shortcoming in the research design prevents one from being able to verify the conclusions of the Johns Hopkins study.

Rather than using a longitudinal design that would have allowed the research team to measure the same students

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7. The Johns Hopkins researchers used as the base measure for the "initiation" of first coitus a point three years prior to the beginning of the evaluation period, and the final comparison of first "initiated coitus" three years after students had first been exposed to the experimental program. Why the Johns Hopkins evaluators used this time frame is not known. A better comparison would have been made by observing the yearly changes in age of first intercourse over the six year period in both the experimental and control school populations.

8. Using standard life-table analysis, the Johns Hopkins evaluators calculated the pregnancy rate by comparing the pregnancy rate measure at a time 28 months before the survey of interest and 28 months later (Zabin et al., 1986:123-124).

throughout the experimental period, the Johns Hopkins researchers employed a cross-sectional design that merely offered a "snapshot" of student attitudes, knowledge, and behavior at several points in time.[9] Accordingly, the study did not control for student mobility (transfers, drop-outs, etc.) in and out of the control and experimental schools. (The experimental design of the Johns Hopkins study is illustrated in Figure 2 on page 9.)

We do know that, for whatever reason, the sample size of female students at the experimental school dropped more than 30 percent between the first and last measurements (Weed 1986:32). This decline was approximately three times larger than the corresponding drop at the control schools (Kasun 1986:1). While the JHU researchers attributed these sample size declines to "lower attendance and enrollment," they did not explain why the decrease was so much larger -- especially among girls -- at the experimental schools[10] (Kasun 1986:1).

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9. The Johns Hopkins researchers did not specifically state whether the study was cross-sectional or longitudinal. From the information available, it seems clear that the study was cross- sectional because it utilized anonymous questionnaires at both the control and experimental schools (Zabin et al., 1985:5), making it impossible, therefore, to track individual students over time.

10. The Johns Hopkins researchers did indicate that student population movement in and out of the individual schools was likely to cause varying degrees of exposure to the clinic program (Zabin et al., 1986a:120).

-FIGURE 2-

Experimental schools*

O** (1-4) = questionnaire administered.
O1 -grades 8-12, September 1981.
O1A -grade 7, November 1981.
O2 -grades 7-12, May 1982.
O3 -grades 7-12, May 1983.
O4 -No date was given for the administration of this questionnaire. Since data collection was stated as continuing until June, 1984 (Zabin et al., 1985:2), the placement of this observation point is based on that date.

Xa*** = school program initiated, November 1981.
Xb = clinic program initiated, January 1982.

Control schools*

O** (1-2) = questionnaire administered.
O1 -listed as being administered at the beginning of the experimental period (Zabin 1986a:119).
O2 -listed as being administered at the end of the experimental period (Zabin 1986a:119).

* Temporal order moves from left to right.
** (O) Process of observation or measurement.
*** (X) Exposure of a group to an experimental variable or event.

In reviewing the Johns Hopkins research, Kasun expressed a related concern about the researchers' "failure to give numbers, rather than percentages or percent changes, in any of the categories studied." She said the use of percentages alone "conceals the fact that the numbers are very small in many cases."[11]

Aside from these questions, the research design employed by the Johns Hopkins researchers poses another problem as well. Since the students at the control school were measured at two points, while the students in the experimental schools were measured on four different occasions (see Figure 2), it is difficult to compare the questionnaire results from the experimental and control schools. Among other things, this discrepancy prevents one from knowing how great a role, if any, a "testing" effect[12] played in influencing student questionnaire responses.

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11. The researchers acknowledged that some cells were too small for reliable analysis and that the 12th grade sample in the final questionnaire round was inadvertently biased (1985: Appendix A).

12. "Testing" refers to the effects of an experimental observation upon the scores of repeated observations. The more one is tested, the greater the likelihood that the testing effect will be significant.

OTHER REVIEW CONSIDERATIONS

In addition to the absence of data on shifts in sample size, the report on the Johns Hopkins study contains no raw figures or percentages for a number of standard demographic variables such as marital status, academic achievement, and family characteristics.[13] Thus, there is little for one to work with in assessing the initial comparability of the experimental and control school populations, and there is no information to aid an assessment of the change in demographic characteristics over time.[14] Since such factors could affect pregnancy rates, this omission makes it impossible to verify the researchers' assertion that school-based clinics were responsible for the reported decline in pregnancy rates at the experimental schools.

From what little is known about the various schools, there appear to be at least two discrepancies between the

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13. Family characteristics include but are not limited to parent-child communication, the number of parents living in a household, and the number of children living in a household.

14. The authors did state that "no two schools in any school system are truly comparable..." (Zabin et al., 1986a:120). While this is true, more data and statistical controls are needed to assess the degree of comparability between the various schools.

two senior high school populations. First, the experimental senior high school served as a magnet school[15] which attracted some highly motivated young people (Zabin et al., 1986b:78). Since the senior high control school offered no similar program for gifted students, one would expect to find higher future goal expectations among the subset[16] of highly motivated students in the experimental schools than among the students in the control schools. Clearly, future goals and aspirations can have an impact upon sexual decision-making. Research has shown that students motivated by academic achievement are more inclined to develop the behaviors necessary to delay pregnancy. Morrison's (1985:553) review of research on adolescent contraceptive use found that even in a large and representative sample of never married nonusers of contraception:

> 13% of whites and 25% of blacks reported they had, at least once, neglected to use contraception out of desire for, or indifference to, a pregnancy. The proportion of respondents wanting a pregnancy was related to education aspirations, SES, marriage plans; those who did not plan to finish high school, whose mothers did not complete elementary school, and who had

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15. Magnet schools generally offer a more challenging academic environment than that found in conventional schools. Interestingly, the authors of the Johns Hopkins study point out that some of the students in the magnet school were interested in health careers (Zabin et al., 1986b:78). This could have influenced their participation in the clinic program and their effectiveness in using contraceptives.

16. The Johns Hopkins researchers did not indicate how large this subset was (see Figure 1).

imminent marriage plans were most likely to give reasons for nonuse (Shah, et.al.; 1975).

Other studies also suggest that an association exists between early sexual experience, contraceptive use, and academic aspirations and achievement (Devaney and Hubley, 1981; Jessor et al., 1983; Moore et al., 1985). These studies verify that the higher one's academic aspirations and achievement, the more likely he or she is to delay sexual activity, and if sexually active, to use contraceptives.

A second discrepancy between the two groups of students concerns pregnancy rates prior to the implementation of the clinic program. According to the JHU researchers sexual activity was high in the control and experimental schools before the advent of the experimental period, but the pregnancy rate at the senior high experimental school was "considerably lower" than that at the senior high control school (Zabin, et al., 1985:6). Unfortunately, the Johns Hopkins researchers did not explore the possible reasons for this discrepancy nor did they account for its potential influence on their study's final outcome.

FURTHER CONSIDERATIONS

The absence of other information hinders critical review of the Johns Hopkins study even further. While the JHU researchers noted that three years after the start of the experimental program "92 percent of female students age 15 and older had attended a professional facility" (Zabin et al.,1986a:122), they did not distinguish between students who attended the clinic for family planning services and those that did not (Zabin et al., 1986a:124). Moreover, the researchers apparently did not measure changes in the frequency of sexual activity[17] -- a factor which has a bearing on pregnancy rates even when contraception is used regularly.[18]

There are other variables which may have affected the findings of the Johns Hopkins study. For example, the heightened attention to sexual issues after the implementation of the clinic program may have influenced student questionnaire responses at the experimental school.

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17. Although frequency of sexual intercourse was not listed as an item for measurement by the researchers (Zabin et al.,1986a), the Johns Hopkins evaluators did indicate that research is being conducted to evaluate the frequency of sexual activity among clinic users (Zabin et al., 1984b:426; Hirsch et al.,1985).

18. The National Research Council found that the contraceptive failure rate among sexually active adolescents ranged from 15 to 25 percent (1987:49). Therefore, one would expect the pregnancy rate to rise as frequency of sexual activity rises even if contraceptives are used regularly.

In addition, since the school-based clinic was a new, innovative program, the reported outcomes may have been more marked than if the program were an established part of the school curriculum.

CONCLUSION

Methodologically, the Johns Hopkins study represents an improvement upon the research design employed in the evaluation of the St. Paul, Minnesota clinic program. Nevertheless, a weakness in the design of the JHU study, combined with the failure to control for and/or properly quantify a number of key variables, limits the study's usefulness to the academic and policy making communities.

It would be a mistake for policymakers and others to presume that the findings of the JHU study (assuming they are valid) can be easily reproduced elsewhere. From the information available, the most optimistic conclusion that can be drawn from the Johns Hopkins study is that the findings are not generalizable[19] beyond, or at least are restricted to, the population of students at the

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19. Generalizability refers to the extent a study's findings may be applied to other populations and settings. If a study is not generalizable outside a given sample or setting, caution must be observed in determining policy directions.

experimental schools. Thus, duplicating programs similar to the Johns Hopkins clinic program without considering these factors is not justified.

Clearly, more research is needed in at least three areas related to adolescent sexuality and pregnancy.

First, little research has been conducted to examine the physical, psychological, and social impact of adolescent sexual behavior. Exacting research in this area should be conducted.

Second, little research has been conducted to examine the physical, psychological, and social impact of contraceptive use on adolescents. Objective research in this area is also needed.

Third, opponents of adolescent contraceptive availability to minors often promote alternative programs which encourage adolescent sexual abstinence, but little research has been conducted on the effectiveness of these programs. Accordingly, objective research is needed in this area as well.

Unfortunately, each of these research areas requires increased intervention into the private lives of adolescents and their families. Thus, research professionals and policymakers need to carefully consider whether the

potential benefits of each experimental program or research project outweigh the risks associated with it. We cannot afford to rush headlong into adopting policies and designing research projects indiscriminately. Indeed, an incident at one of the JHU experimental schools illustrates just how sensitive this subject is. When a questionnaire on health and sexual attitudes was administered several years after the clinics had been established, many community members objected. The New York Times reported that many parents and some school principals found the survey offensive and intrusive and were suspicious of its purpose (1986:8).

Finally, it is important for society as a whole and policy-makers in particular to recognize that no social program exists in a vacuum. Pregnancy rates are affected by a number of factors outside the control of the local school. Thus, a pregnancy prevention strategy should consider addressing a number of other problems which may influence the pregnancy rate (lack of job skills and career aspirations, low self-esteem, family dysfunction, etc.). In addition, a pregnancy prevention strategy must send a consistent message about the acceptability or unacceptability of adolescent sexual behavior. No pregnancy prevention program can be expected to work if it sends a mixed message or if the surrounding culture undermines its message. Indeed, the effectiveness of any program is

largely dependent upon the degree to which a consistent message is sent.

This research paper was prepared by Tobin W. Demsko, a sociologist whose academic studies have focused primarily on issues related to teen sexuality and pregnancy. Mr. Demsko is a research analyst with the Family Research Council.

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